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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/570,731	03/06/2006	Frits A. Degraaf	PHUS030318US	9980

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS
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CLEVELAND, OH 44143

EXAMINER	
LEACH, CRYSTAL I	
ART UNIT	PAPER NUMBER
3737	
MAIL DATE	DELIVERY MODE
10/03/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/570,731	DEGRAAF ET AL.	
	Examiner	Art Unit	
	CRYSTAL I. LEACH	3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *3/6/2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/6/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Examiner notes that claims 1, 3, 4 and 9 invoke 35 U.S.C. 112, sixth paragraph.

Information Disclosure Statement

1. The Information Disclosure Statements (IDS) submitted on March 6, 2006 is in compliance with 37 CFR 1.97 and 1.98. The references therein have been considered.

Claim Objections

2. Claims 9, 10 and 14 are objected to because of the following informalities:

On line 3 of claim 9, "kinetic" needs to be changed to --kinematic--.

On line 2 of claim 10, "point" needs to be changed to --joint--.

On line 5 of claim 14, either "a position" or "a portion" needs to be removed as supported by the written description.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4, 11-13, 20 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Melchert et al.

5. Regarding claims 1-4, 11-13, 20 and 21, Melchert et al. teach a method and system capable of performing the method, wherein the method is a method for

generating cine images of a continuously moving bodily structure (see abstract and p. 457-458, "Materials and Methods" section related to MRI cine studies of active movement of the ankle joint), the method comprising: continuously moving the bodily structure back and forth through a series of motion states (see p. 458, *"Positioning Device"* section, the ankle joint is periodically moved which is considered continuous movement); generating magnetic resonance image data of the bodily structure as it moves continuously through the motion states (see p. 458, left-hand column, l. 5-13, cine MR imaging of active physiological motion of the ankle joint is performed); detecting current motion states through which the bodily structure is moving (the MRI scanner is triggered by a pseudo-ECG which is derived from a motion curve registered by a pneumatic pressure transducer, see p. 457, "*Motion Registration*"; Examiner considers the analysis of the pseudo-ECG to be a way of "detecting current motion states")*;* and, distributing the magnetic resonance data in accordance with the detected current motion states (implicitly disclosed by referring to "cine MR imaging" see p. 458, right-hand column, 2nd paragraph, which is triggered by a pseudo-ECG, see p. 458, "*Positioning Device"* section). See also the "Discussion" section on p. 459-460.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 5, 8-10, 14, 15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Melchert et al. in view of Niitsu et al.

Melchert et al. do not explicitly teach a memory and updating the phase encoding.

In a similar field of endeavor, Niitsu et al. teach a memory utilized in order to increment the phase encoding gradient when a particular phase encoding step phase been acquired for each image (see figures 1-4 and "Subjects and Methods" section on p. 859-860).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include a storage device or memory that would enable the provision of an indication to the sequence controller of the phase encode steps which correspond to motion states in the invention of Melchert et al., in light of the teaching of Niitsu et al., in order to improve the utility of the device.

8. Claims 6, 7 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Melchert et al. in view of Nessaiver (EP 0 599 456 A1).

Melchert et al. do not explicitly teach distributing means capable of distributing the data as outlined in the claims.

Nessaiver teaches a distributing means capable of distributing the data as defined by the claims (see fig. 2 and 4 and p. 5, l. 18 – p. 6, l. 21). Furthermore, when considering claims 7 and 18, it is noted that the distribution of data with near central phase encoding into narrower motion state windows that data with higher phase encoding would appear to be an equivalent to the data sharing disclosed in Nessaiver

since the high phase encoding data shared between two motion state windows can be considered to form one “wide” motion state window.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the teaching of Nessaiver in the invention of Melchert et al. in order to increase the temporal resolution of the cine technique.

9. Claims 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Melchert et al. in view of Fuderer et al. (US 2002/0039024).

Melchert et al. do not explicitly teach generating low resolution reference data for each motion state window with a plurality of antennae; using the reference data as a regularization image to improve conditioning of an inversion matrix for each of a plurality of the motion states for unfolding aliased images collected in parallel from the plurality of antennae during the continuous motion through the motion states; using the reference data in conjunction with the image data from the continuously moving bodily structure to reconstruct the cine mode image representations.

Fuderer et al. teach these limitations (see para. [0014]-[0027] and [0041]-[0067]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the teachings of Fuderer et al. in the invention of Melchert et al. in an effort to reduce the duration of acquisition of the cine technique.

10. Claims 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Melchert et al. in view of Anand et al. (6,549,008).

Melchert et al. do not explicitly teach generating the image data from a center of k-space progressively outward; repeatedly reconstructing the image data such that the

cine mode image display improves as more data is collected; stopping the generating of image data after the cine mode image display becomes satisfactory.

Anand et al. teach these limitations (see col. 4, l. 63 – col. 6, l. 25).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include these limitations in the invention of Melchert et al., in light of the teaching of Anand et al., in order to improve the image quality.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tsujita (5,541,515) teaches a MRI joint imaging system and Votruba et al. (5,899,859) teach multipositional MRI for kinematic studies of movable joints.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CRYSTAL I. LEACH whose telephone number is (571)272-5211. The examiner can normally be reached on Monday through Friday, 8 am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BRIAN CASLER/
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/Crystal I Leach/
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